

SMART COOLING CLOSED CUP FLASH POINT TESTER WITH INERT GAS SUPPRESSION



Smart Cooling Closed Cup Flash Point Tester with Inert Gas Suppression - ToronFPT™ CC-SC

ToronFPT™ CC-SC is a full-automatic closed cup flash point tester designed and manufactured in accordance with ASTM T261-2008 and ASTM D93 standards for precise, automated determination of closed cup flash points of petroleum products, chemicals, and flammable liquids. The instrument features a high degree of automation — automatically opening the cover, automatically lifting the mechanism, automatically controlling temperature, automatic ignition, automatic measurement, automatic printing, automatic flame detection and fire extinguishing, intelligent flame maintenance, and automatic forced cooling.

As a closed cup flash point tester, the ToronFPT™ CC-SC confines the sample vapor within the test cup throughout the measurement cycle, making it appropriate for testing low-flash-point materials and samples that would not be safely tested in an open cup configuration. The inert gas spray fire extinguishing system and intelligent sample cup cooling rack provide a superior level of operational safety over conventional closed cup flash point testers.

APPLICATIONS

Smart Cooling Closed Cup Flash Point Tester with Inert Gas Suppression - ToronFPT™ CC-SC Applications

The ToronFPT™ CC-SC automatic closed cup flash point tester is used across petroleum product safety testing, regulatory compliance, and quality control applications:

- Petroleum distillates and fuel oils: ASTM D93 closed cup flash point testing for kerosene, diesel, jet fuel, and heating oils

- Solvents and flammable chemicals: flash point classification for workplace safety compliance and transportation hazard labeling
- Lubricating oil and metalworking fluids: closed cup flash point verification for safety data sheet and product specification requirements
- Paints, varnishes, and coatings: flash point determination for regulatory classification and storage safety requirements
- Petroleum refinery QC: closed cup flash point testing for process monitoring and product release verification
- Independent testing laboratories: ASTM D93-compliant closed cup flash point testing for commercial petroleum and chemical testing
- Regulatory compliance testing: safety classification of flammable liquids for GHS, DOT, and WHMIS hazard category determination



Applicable Standards

The ToronFPT™ CC-SC closed cup flash point tester is designed to support testing in compliance with the following international standards:

- ASTM D93: Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

FEATURES

Smart Cooling Closed Cup Flash Point Tester with Inert Gas Suppression - ToronFPT™ CC-SC Key Features

The ToronFPT™ CC-SC automatic closed cup flash point tester delivers a comprehensive automation and safety feature set for high-confidence closed cup flash point testing:

- 8-Inch Full HD Color LCD Touchscreen Interface: intuitive 8-inch color HD LCD touch screen with all-Chinese human-computer dialogue interface for clear parameter setting and result review.
- Customizable Test Process Parameters: setting rate, stirring rate, ignition frequency, advance ignition temperature, and other test parameters are fully customizable — adapting the instrument to different sample types and test method requirements.
- Real-Time Temperature and Time Function Curve Display: accurate simulation tracking provides real-time temperature and test time function curve display, with software misoperation modification prompts.
- Atmospheric Pressure Correction: built-in atmospheric pressure sensor automatically corrects the measured flash point result for barometric pressure variation, as required by ASTM D93.
- Optional Fast Mode for Unfamiliar Samples: a fast mode (10–15°C/min heating rate) is available for quick flash point estimation of unfamiliar samples before committing to a full-precision test.

- Electric and Gas Ignition — Free Switching: electric ignition and gas ignition can be freely switched — easy to operate, fast, and convenient without hardware replacement.
- Automatic Rotating Lift Arm: automatic rotating lift arm manages cover opening, detection, printing, and data output — making the entire closed cup flash point test fully automatic.
- Fast Forced Cooling — Next Test in 10 Minutes: the forced cooling system quickly cools the heating system so that the next test can be carried out within 10 minutes, supporting high sample throughput.
- Intelligent Sample Cup Cooling Rack: the instrument comes with an intelligent sample cup cooling rack — automatically starts and stops the cooling system based on sample cup temperature.
- Silicon Nitride Automatic Ignition Head: silicon nitride ignition head with automatic ignition requires no manual use of ignition guns. Intelligent flame detection and automatic re-ignition greatly extends ignition head service life.
- Hidden Lift Type Dual Fire Extinguisher: the instrument actively detects the open fire and automatically extinguishes it within two seconds of occurrence by spraying inert gas through the hidden lift type dual fire extinguisher system.
- LIMS Connectivity via USB Interface: can be connected to LIMS system through USB interface for seamless laboratory data management integration.

THEORY & METHOD

Theory and Method

The ToronFPT™ CC-SC measures flash point using the Pensky-Martens Closed Cup method as specified in ASTM D93. The sample is sealed within the closed test cup. The instrument automatically raises the sample temperature through three controlled heating rate stages: Step A (1–6°C/min), Step B (1 to 1.5°C/min), Step C (2.5 to 3.5°C/min), with a fast mode (10–15°C/min) available for quick estimation of unfamiliar samples. A stirrer maintains homogeneous sample temperature distribution throughout the heating cycle.

At defined temperature intervals, the automatic lid opens briefly, the ignition source is applied to the vapor space above the sample, and the lid closes again. Flash point is automatically detected when a flash appears in the vapor space. The

instrument's atmospheric pressure sensor automatically corrects the measured flash point for barometric pressure effects. Upon flash detection, the inert gas spray fire extinguishing system immediately suppresses the flame — the hidden lift type dual fire extinguisher actively detects the open fire and automatically extinguishes it within two seconds by spraying inert gas. The forced cooling system rapidly reduces the cup and furnace temperature, enabling the next closed cup flash point test to begin within 10 minutes.

TECHNICAL SPECIFICATIONS

Smart Cooling Closed Cup Flash Point Tester with Inert Gas Suppression - ToronFPT™ CC-SC Technical Specifications

Parameter	Specification
Model	ToronFPT™ CC-SC
Standards	ASTM D93
Measuring Range	Room temperature - 400°C
Repeatability	≤2°C
Reproducibility	≤4°C
Resolution	0.1°C
Heating Rate	Step A: 1-6°C/min; Step B: 1-1.5°C/min; Step C: 2.5-3.5°C/min; Fast mode: 10-15°C/min; Custom mode: adjustable
Fire Extinguishing Method	Inert gas spray fire extinguishing
Furnace Cooling	Forced air cooling
Ignition Mode	Electric ignition; gas ignition; free switching

Parameter	Specification
Sample Cup Cooling	Intelligent air cooling rack
Fire Maintenance	Intelligent detection, automatic re-ignition
Power Consumption	≤300 W
Main Unit Size	460 × 375 × 360 mm
Voltage	AC220V ± 10%; 50Hz ± 10% (110V is also available)
Relative Humidity	<80% RH
Ambient Temperature	10 - 40°C
Other Notes	No strong vibration, airflow, strong electromagnetic interference, or corrosive gases around the laboratory



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